DEPARTMENT OF THE NAVY
NAVAL MEDICAL COMMAND
WASHINGTON, D.C. 20372

IN REPLY REFER TO
NAVMEDCOMINST 6260.5 CH-1
MEDCOM-24
17 August 1984

NAVMEDCOM INSTRUCTION 6260.5 CHANGE TRANSMITTAL 1

From: Commander, Naval Medical Command
To: Ships and Stations Having Medical Department Personnel

Subj: OCCUPATIONAL NOISE CONTROL AND HEARING CONSERVATION

Encl: (1) Revised pages 5 through 8 and new page 9 of enclosure (1) to basic instruction

1. Purpose. To provide revised pages 5 through 8 and new page 9 of enclosure (1) to basic instruction, to require recruit training centers to compare audiograms obtained at military entrance processing system centers and recruit training centers for the purpose of establishing a valid baseline reference audiogram.

2. Action. Remove present pages 5 through 8 of enclosure (1) to basic instruction and insert new pages 5 through 9.

3. Cancellation. This change transmittal is canceled upon completion of required action.

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NAVMEDCOMINST 6260.5
MEDCOM-24
26 April 1984

NAVMEDCOM INSTRUCTION 6260.5

From: Commander, Naval Medical Command
To: Ships and Stations Having Medical Department Personnel

Subj: Occupational noise control and hearing conservation

Ref: (a) DODINST 6055.3 of 8 June 1978 (NOTAL)
(b) OPNAVINST 5100.23B
(c) OPNAVINST 5100.8F
(d) NAVMEDCOMINST 5450.16
(e) BUMEDINST 6700.36B
(f) BUMEDINST 6260.7C

Encl: (1) Hearing Conservation Program - Medical Department Procedures

1. Purpose. To provide guidance for implementation of those portions of the Navy Noise Control and Hearing Conservation Program for which the Medical Department is responsible.

2. Applicability and Scope. This instruction applies to all naval commands and activities having Medical Department personnel.

3. Background. References (a) and (b) set forth the basic requirements and guidance for the Navy Noise Control and Hearing Conservation Program. This instruction supplements reference (b).

4. Action. Department of the Navy policy, provided in reference (c) and implemented in reference (b), emphasizes safety and occupational health as inherent responsibilities of command. Occupational noise control and hearing conservation are important aspects of commands' occupational safety and health programs. Reference (b) outlines Medical Department responsibilities for support of the Hearing Conservation Program. Enclosure (1) of this instruction contains details on the implementation of Medical Department procedures which shall be used in conjunction with reference (b). In the accomplishment of these goals, the following actions and responsibilities are assigned:

a. The Commanding Officer, Navy Environmental Health Center (NAVENVIRHLTHCEN) shall:

(1) Centrally manage the medical aspects of the Navy Hearing Conservation Program, as delineated in enclosure (1) of reference (d).

(2) Periodically review chapter 18 of reference (b) and submit to Chief of Naval Operations via Commander, Naval Medical Command (COMNAVMEDCOM) recommendations for changes which may be indicated to ensure validity and effectiveness of the Hearing Conservation Program.

(3) Provide professional and technical guidance in occupational noise control and hearing conservation to Chief of Naval Education and Training, Chief of Naval Material, and Medical Department activities.

(4) Develop guidelines and criteria in accordance with chapter 18 of reference (b) for:

(a) Personnel conducting sound level measurements.

(b) Personnel performing hearing conservation audiometry.

(c) Audiometric test chambers.

(d) Audiometers used in support of hearing conservation programs.

(e) All sound level measuring equipment.

(5) Evaluate regional training courses for hearing conservation technicians and issue certifications to personnel successfully completing this training.

(6) Establish and maintain a hearing conservation data base to enable assessment of program effectiveness and to provide input to noise control engineering decisions based on prevalence of hearing loss.

(7) Provide a central repair and calibration facility for audiometers.

(8) Provide onsite field calibration and repair of audiometers, as feasible.

(9) Maintain a comprehensive perpetual inventory of all hearing conservation audiometric equipment within the Medical Department.

(10) Review procurement plans for all audiometric equipment for technical accuracy, consistency with repair parts inventory, and compatibility with the centrally managed information data base.

b. All geographic naval medical commands shall:

(1) Appoint an audiologist or another qualified individual preferably within the occupational health service as manager or coordinator for Medical Department procedures in hearing conservation.

(2) Assure all Medical Department personnel assigned to duties in designated hazardous noise environments are included in the hearing conservation program, in accordance with reference (b).

(3) Provide professional and technical surveys, evaluations, and consultations to commands and activities regarding hearing conservation and noise control.

(4) Provide hearing testing and earplug fitting support for military and civilian personnel included in hearing conservation programs.

(5) Provide for audiological evaluations and medical consultation for personnel identified in paragraph 3b(4) and (5) of enclosure (1).

(6) Provide minor repair of hearing conservation program audiometers as specified in reference (e).

(7) Provide training for hearing conservation technicians as authorized by NAVENVIRHLTHCEN.

(8) Ensure all hearing tests are performed by trained and certified technicians.

(9) Ensure all noise survey results are reviewed by a qualified professional.

(10) Submit semiannual reports of all hearing conservation services provided in this program in accordance with reference (f).

(11) Identify and report resources used in this program as occupational health resources on activity financial reports.

(12) Provide inventory information to NAVENVIRHLTHCEN on hearing conservation audiometric and noise measuring equipment.

c. All ships and stations having Medical Department personnel (less regionalized COMNAVMEDCOM activities and NAVENVIRHLTHCEN) shall:

(1) Appoint a responsible individual to coordinate all medical aspects of occupational noise control and hearing conservation.

(2) Assure identification and characterization of noise hazardous areas within their purview according to paragraph 2 of enclosure (1).

(3) Assure that hearing conservation audiometry, clinical evaluation, and referrals are performed according to the standards of paragraph 3 of enclosure (1).

(4) Provide for earplug fitting support for military and civilian personnel within their program, according to paragraph 4 of enclosure (1).

(5) Assure certification or training, in accordance with enclosure (1) of this instruction, of Medical Department personnel, sound measurement equipment, audiometers, and hearing test booths involved in the hearing conservation program.

(6) Seek support and assistance, as necessary and appropriate, from COMNAVMEDCOM regional activities, or Navy environmental and preventive medicine units (NAVENPVNTMEDUs) for those aspects of occupational noise control and hearing conservation in which they are not self-sufficient.

5. Hearing Conservation Data

a. All hearing conservation data shall be recorded using the following forms:

(1) DD 2215, Reference Audiogram

(2) DD 2216, Hearing Conservation Data

(3) DD 2217, Biological Audiometer Calibration Check

b. After proper review and validation, disposition of completed DD 2215 and DD 2216 forms shall be as follows:

(1) Original is to be placed in the individual's Health Record.

(2) First copy is to be sent to the NAVENVIRHLTHCEN.

(3) Second copy may be retained for local use.

6. Forms. The forms listed in paragraph 5 are available in the Cognizance "1I" stock points of the Navy Supply System under the stock numbers indicated:

Form	Title	Stock Number
DD 2215	Reference Audiogram	0102-LF-002-2150
DD 2216	Hearing Conservation Data	0102-LF-002-2160
DD 2217	Biological Audiometer Calibration Check	0102-LF-002-2170
SF 513	Consultation Sheet	Available through GSA Stock Depots under NSN 7540-00-634-4127

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HEARING CONSERVATION PROGRAM - MEDICAL DEPARTMENT PROCEDURES

1. Introduction

a. Program Elements. The Navy Hearing Conservation Program includes the following elements:

(1) Noise measurement and exposure analysis to identify hazardous noise areas or sources and the personnel exposed.

(2) Recommendations for engineering reduction of noise levels to reduce the potential hazard to the maximum extent feasible.

(3) Periodic hearing testing of all personnel at risk to monitor the effectiveness of the program, and timely audiologic and medical evaluation of those personnel who demonstrate significant hearing loss or threshold shift.

(4) Recommendations for use of hearing protective devices as an interim measure or where administrative and engineering controls are not feasible.

(5) Education regarding potentially hazardous noise areas and sources, use and care of hearing protective devices, the effects of noise on hearing, and the command's hearing conservation program.

b. Responsibilities. Responsibilities for all program elements are assigned in reference (b). Medical Department responsibilities for engineering noise control include only noise producing equipment or processes located in medical facilities.

2. Noise Measurements and Exposure Analyses

a. Noise Measurements. Noise measurements and exposure analyses shall be conducted in accordance with reference (b).

(1) Noise measurements shall be conducted with a sound level meter to identify all potentially hazardous noise areas, that is, those areas and equipment which have or generate noise levels greater than 84 dB(A) (slow response) or impact or impulse noise of greater than 140 dB peak sound pressure level. The C-weighted levels shall also be measured and recorded.

(2) Noise measurements shall be conducted by Medical Department industrial hygienists or others meeting guidelines established by NAVENVIRHLTHCEN.

(3) The sound level meter shall conform as a minimum to the type 2 requirements specified in American National Standards Institute (ANSI) standard S1.4, "Specifications for Sound Level Meters." The measurement of impulse or impact noise shall be made with a type 1 or type 2 sound level meter with impulse measurement capability. An acoustical calibrator, accurate to within $\pm$1 dB, shall be used to verify the before and after calibration of the noise measuring instrument on each day that noise measurements are taken. Sound level meters shall be electroacoustically calibrated and certified annually for compliance with ANSI Standard S1.4. Acoustical calibrators shall be electroacoustically calibrated and certified annually. Naval activities intending to provide calibration and repair services of sound level meters and calibrators shall submit a test protocol to NAVENVIRHLTHCEN for approval, prior to performing such services.

b. Noise Surveys. Initial and periodic noise surveys shall be conducted in accordance with chapter 18 of reference (b). Personnel working in potentially hazardous noise areas shall be identified by their parent activity and their names placed on a roster for inclusion in the medical surveillance program. This program will include hearing protector fitting, education, and audiometric monitoring.

c. Noise Exposure Analyses. In cases where the noise is not predictable or where impulse or impact noise occurs together with continuous noise, a noise dosimeter may be used for the analysis of noise exposure. Noise dosimeters, if used, shall meet the Class 2A-84/80-4 requirements of ANSI standard S1.25, "Specification for Personal Noise Dosimeters," with an operating range of at least 80 dB(A) to 130 dB(A). The time weighted average (TWA) sound level shall be recorded on the noise survey form. The TWA sound level shall not be used arbitrarily to preclude the use of hearing protective devices.

d. Identification of Personnel at Risk. In the absence of an industrial hygienist's assessment to the contrary, personnel exposed to sound levels greater than 84 dB(A) or 140 dB peak sound pressure level for impact or impulse noise shall be considered at risk and shall be identified on the command's roster for inclusion in the hearing conservation program. Although hearing conservation measures are required when noise levels are greater than 84 dB(A), the implementation of all available measures may not be necessary in every case.

(1) Visitors to a hazardous noise area should be required to wear hearing protection but not be required to have their hearing tested or be included on a roster of noise exposed personnel. There may also be unique situations where sound levels rise unpredictably above 84 dBA for short durations so that the wearing

of hearing protective devices may be judged impractical or unnecessary. Decisions to waive the use of hearing protective devices must not be made arbitrarily: such professional judgements should be rendered by an industrial hygienist or other qualified professional using approved instrumentation and considering all relevant factors.

(2) Exceptions to the basic hazardous noise criteria specified above shall be evaluated on a case-by-case basis by an industrial hygienist. Questions regarding the health effects of unusual noise exposures should be directed to NAVENVIRHLTHCEN. Such exceptions may include, but are not limited to, the following:

(a) Greater than 16 hours continuous or intermittent exposure per day.

(b) Intense low frequency noise, that is, when the difference between the C-weighted and A-weighted values is greater than 15 dB.

(c) High frequency noise above 10 kHz, and ultrasound.

(d) High intensity noise above 140 dB sound pressure level.

(e) Impulse/impact noise above 150 dB peak sound pressure level.

3. Audiometry

a. Technical Requirements

(1) Audiometric test chambers shall be certified every 2 years and within 30 days of any change of ambient noise level which could affect hearing testing. Interior noise levels shall not exceed the values given in appendix A. Certification shall be performed preferably by Medical Department industrial hygienists, or others meeting guidelines established by NAVENVIRHLTHCEN.

(2) Audiometer preventive and minor maintenance not affecting calibration shall be accomplished by the regional medical equipment maintenance and repair facility in accordance with reference (e). A pool of audiometers for loan shall be maintained for branch clinics (and fleet activities where necessary) to be used for exchanging defective units which cannot be repaired locally. The pool shall be controlled by the regional medical equipment maintenance and repair facility. Any additional audiometers purchased for the pool shall be Federal Stock Number 6515-00-926-1520. Guidance concerning the pool may be obtained by contacting NAVENVIRHLTHCEN.

(3) Audiometers shall be calibrated by physical methods at least annually for compliance with ANSI standard S3.6, "Specifications for Audiometers." All calibration and major repairs affecting calibration shall be accomplished by NAVENVIRHLTHCEN on all audiometers used in the hearing conservation program. Clinical or diagnostic audiometers in otolaryngology clinics are exempt from this requirement. For remote activities, or for activities where local calibration may be obtained, a determination will be made by NAVENVIRHLTHCEN on a case-by-case basis if local calibration may be authorized. Guidance to obtain authorization for local calibration is provided in reference (e). NAVENVIRHLTHCEN will also provide audiometric calibration and repair services according to the following criteria:

(a) Failure to meet biological calibration requirements.

(b) Operational failure beyond the capability of the regional medical equipment maintenance and repair facility.

(4) Hearing tests shall consist of pure tone, air conduction hearing threshold measurements at test frequencies of 500, 1,000, 2,000, 3,000, 4,000, and 6,000 Hz. Each ear shall be tested separately.

(5) A biological calibration and listening check shall be performed daily and shall be logged on DD 2217. For group audiometric test systems a variance may be obtained from NAVENVIR HLTHCEN. If the daily biological test results differ from the individual's baseline audiogram by more than $\pm$5 dB, a second individual must be tested. Recalibration of the audiometer is necessary if the second individual's biological test results also differ by more than $\pm$5 dB from the baseline audiogram. Keep DD 2217's on three or more individuals on file for these biological calibration checks.

(6) Hearing tests performed on a self-recording audiometer must meet the following criteria:

(a) It must be possible to draw a straight line through the center of the tracing at each frequency such that it deviates no more than 5 dB from the beginning to the end of the tracing for that frequency.

(b) The tracing shall cross the line drawn through the center at least eight times at each test frequency.

(c) A 10 dB validity check must be done within the frequency range of 1,000 - 3,000 Hz for each ear and, at the discretion of the technician, whenever a rhythmic response is suspected.

(7) Whenever a self-recording audiometric test fails to meet the preceding requirements, a manual or microprocessor-controlled hearing test shall be administered.

(8) Medical facilities providing hearing testing services to shore commands and fleet activities using existing group self-recording audiometers shall be limited to using four testing stations per examiner. Microprocessor controlled group audiometer (MCGA) systems may be used to test up to 10 persons at a time.

(9) Audiometric testing shall be performed by trained and certified technicians. Successful completion of the hearing conservation techniques course authorized or conducted by the NAVENVIRHLTHCEN is required for certification. Recertification training is necessary every 3 years.

(10) Audiometric testing shall be supervised by an audiologist, otolaryngologist, or qualified physician.

(11) Ear, nose, and throat (ENT) technicians performing hearing tests within the otolaryngology service are certifiable by virtue of their training and upon application to NAVENVIRHLTHCEN. If the ENT technician is to be routinely utilized in the hearing conservation program, it is strongly recommended the individual attend an approved Navy hearing conservation techniques course.

b. Audiometric Testing. Audiometric testing shall be conducted in accordance with chapter 18 of reference (b) except as noted in the following sections.

(1) Recruit Baseline Audiometric Testing. Reference (b) does not allow the use of audiograms obtained by the military entrance processing system (MEPS) as reference audiograms but does require a reference audiogram on all military personnel. The audiometric testing centers at all recruit training centers (RTC's) and Marine Corps recruit depots (MCRD's) shall conduct audiometric testing and make comparisons between these reference audiograms and the MEPS audiograms. If the two tests differ by 10 dB or greater at any frequency, a third test shall be conducted to determine which test is more accurate. The better of two audiograms which differ by no more than $\pm$ 5 dB shall be established as the reference audiogram.

(2) Reference Hearing Tests. The reference hearing test shall not be obtained unless the individual has not been exposed to noise above 80 dB(A) for at least 14 hours (this requirement may be met by wearing the appropriate hearing protective device). The results of any reference hearing test shall be recorded on DD 2215 (see appendix B for guidance regarding transcription of

audiometric data). The original reference audiogram form shall be retained permanently in the individual's Health Record. Three types of reference audiograms are utilized in the hearing conservation program:

(a) The original reference (baseline) audiogram established prior to initial duty in potentially hazardous noise areas.

(b) The reference audiogram established following exposure to hazardous noise when the original reference audiogram was lost or was never accomplished.

(c) The reference audiogram reestablished as the result of a followup program.

(3) Monitoring Hearing Tests. The 90-day monitoring hearing test is required only after the initial assignment to duties in designated hazardous noise environments. The annual monitoring hearing test may be conducted at any time during the work shift. The results shall be recorded on DD 2216 and retained permanently in the individual's Health Record. When a 15-hour or 40-hour retest is required, it is important that the individual be evaluated in a timely manner. These retests should be completed within 30 days.

(4) Evaluation of Audiogram. Each audiogram shall be evaluated under the supervision of an audiologist, otolaryngologist, or qualified physician. A quality assurance sampling technique is recommended. The DD 2215 and DD 2216 shall be evaluated for validity, determination of significant threshold shift or hearing loss, and for possible medical referral of the examinee. The reviewer of DD 2215 and DD 2216 shall be under the professional supervision of an audiologist, otolaryngologist, or qualified physician. The examiner and the reviewer shall not be the same individual. The review and validation of the DD forms will normally occur prior to the form being released by the testing facility. The ultimate responsibility for the completeness, accuracy, and validity of the DD forms is the responsibility of the testing facility.

(5) Significant Threshold Shift. A significant threshold shift is defined as a change in hearing threshold relative to the original or revised reference audiogram of 15 dB or greater in either ear at any test frequency from 1,000 to 4,000 Hz. In addition, a change in hearing threshold averaging 10 dB or more at 2,000, 3,000, and 4,000 Hz, in either ear, shall be considered a significant threshold shift. The shift may be either positive or negative. Action should be taken as follows:

(a) If the shift is positive, that is, the hearing levels of the monitoring audiogram are poorer (larger) than the reference audiogram, perform the 15-hour retest as in chapter 18 of reference (b).

(b) If the shift is negative, that is, the hearing levels of the monitoring audiogram are better (lower) than the reference audiogram, then either the reference audiogram or the monitoring audiogram may be in error. In order to determine which is the case, a 15-hour noise-free retest shall be conducted. Based upon the results of this retest, the following action shall be taken:

1 If the results of the 15-hour retest are not significantly different from the current reference audiogram, no additional action is necessary.

2 If the results of the 15-hour retest remain significantly improved from the current reference audiogram, establish the retest as the revised reference audiogram, category 3 on DD 2215.

(6) Referral Criteria. Individuals shall be seen by a medical officer who may refer them to a regional otolaryngology service for consultation (cross-reference SF 513 Consultation Sheet to hearing test data) when the individual exhibits:

(a) Hearing threshold levels greater than 25 dB at 500, 1,000, 2,000, and 3,000 Hz or 45 dB at 4,000 and 6,000 Hz, in either ear, which have not been previously evaluated.

(b) Unilateral hearing loss (i.e., greater than 20 dB at 500, 1,000, 2,000 Hz or 40 dB at 3,000, 4,000, or 6,000 Hz) that has not been previously evaluated.

(c) Visible evidence of ear canal occlusion. The presence or persistence of ear pain, ear canal drainage, significant aural pathology, dizziness, severe and persistent tinnitus, sudden or fluctuating hearing loss, rapidly progressive hearing loss, feeling of fullness or discomfort in either ear, difficulty in understanding normal conversational speech or a history of these signs and symptoms within the preceding 12 months, or other suspicious signs or symptoms.

4. Hearing Protective Devices

a. Requirements. Hearing protective devices shall be issued to and worn by personnel in accordance with reference (b).

b. Fitting Procedures. All earplugs requiring fitting shall be dispensed under medical supervision. Before any such device

is placed in an ear, a well-lighted visual inspection is necessary to determine whether any condition is present that would make insertion inadvisable, e.g., observable pathology or excessive earwax. The examinee's ear canals shall be sized separately. The examinee shall be instructed on the proper insertion of the earplugs and their proper cleaning and storage.

c. Hearing Protector Selection. Information on the selection of an appropriate hearing protective device is contained in appendix 18-B of reference (b). Although the selection of the hearing protective device is influenced by a combination of several factors including comfort, the device's attenuation must be sufficient to reduce the employee's noise exposure to below 84 dB(A). Information on noise reduction ratings (NRR) for approved hearing protection devices is given in appendix C. Within the above constraints, the person should be permitted some freedom of choice in the selection of a hearing protective device unless the selected protector is medically contraindicated or inappropriate for a particular noise hazardous area or operation.

d. Administrative Control of Exposure. Administrative control of exposure time will be necessary in cases where hearing protective devices do not provide sufficient attenuation to reduce the employee's effective exposure level to less than 84 dB(A). The table of noise exposure limits is contained in appendix D of this instruction.

5. Education. All personnel placed in a hearing conservation program shall receive instruction on the program in accordance with chapter 18 of reference (b).

6. Recordkeeping Requirements

a. Employee Health Record. The Health Record of each individual identified by command for inclusion in the hearing conservation program shall contain the following:

(1) Original baseline audiogram (DD 2215).

(2) Revised reference audiogram, if different from original baseline audiogram (DD 2215).

(3) All monitoring audiograms (DD 2216).

b. Medical Department Documentation. The following records shall be maintained and retained locally for 5 years:

(1) Current roster of exposed employees, as provided by the individual commands.

(2) Results of noise surveys.

(3) Results of Audiometer Biological Calibration Checks (DD 2217).

(4) Results of audiometric chamber certification.

(5) Records of inservice training of Medical Department personnel included in tne program.